UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,911	02/03/2006	Bum Tae Kim	DE1672	1133

1109 7590 07/03/2008

ANDERSON, KILL & OLICK, P.C.
1251 AVENUE OF THE AMERICAS
NEW YORK,, NY 10020-1182

EXAMINER	
RICCI, CRAIG D	
ART UNIT	PAPER NUMBER
4161	
MAIL DATE	DELIVERY MODE
07/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,911	KIM ET AL.	
	Examiner	Art Unit	
	CRAIG RICCI	4161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *29 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

1. Claims 1-3 are currently pending and the subject of this Office Action. This is the first Office Action on the merits of the claims.

Information Disclosure Statement

2. No IDS has been provided for consideration.

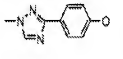
Priority

3. The earliest effective filing date afforded the instantly claimed invention has been determined to be 08/09/2004 as to claims 1-3.

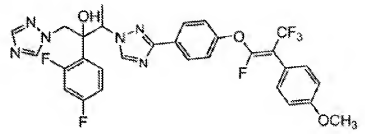
4. Acknowledgment is made of Applicant's claim for foreign priority pursuant to 35 U.S.C. 119(a) and 365(b) based on a prior application filed in Korea on 8/12/2003. The certified copy has been filed in parent Application No. PCT/KR04/01996, filed on 08/09/2004.

Election/Restrictions

5. Applicant's election without traverse of formula I wherein A is



, R is CF_3, R' is CH_3, and X is 4-OCH_3) and the species represented



by the following structure: in the

reply filed on 5/29/2008 is acknowledged.

6. The requirement is thus deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

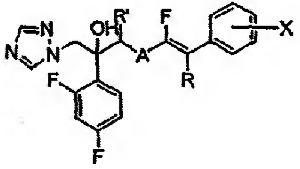
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

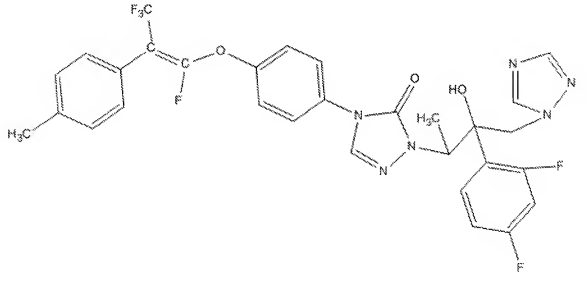
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 1 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over *Itoh et al* (US 5,371,101) in view of *Kim et al* (US 6,552,080).**

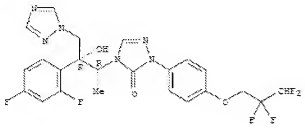
10. Instant claim 1 is drawn to an azole derivative of the following formula (I):



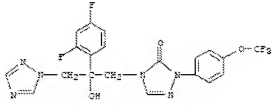
having antifungal activity. As recited in instant claim 1, formula (I) encompasses numerous compounds including, for example,



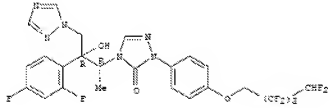
(Table V, Example No. 90). A number of fungicides having core structures identical to formula (I) as recited by claim 1 are well known in the art. Specifically, *Itoh et al* teach several antifungal compounds which include, among others,



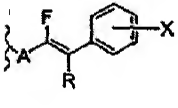
(Column 60, Table 10, Compound No. 19) and



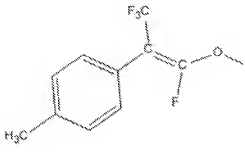
(Column 59, Table 9, Compound No. 12) and



(Column 62, Table 15, Compound No. 48). Although *Itoh et al* do not teach the compound recited by instant claim 1, it is noted that the core structure taught by *Itoh et al* is identical to the core structure of the compound recited by instant claim 1 and, furthermore, that the compound of instant claim 1 differs from *Itoh et al* only in the substitution of the poly-fluoro groups which are attached to phenol (in *Itoh et al*) with



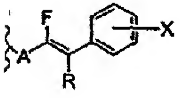
in the instant application, more specifically with



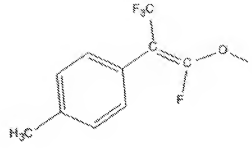
as in Example No. 90 (Table V of Applicant's specification) and encompassed by instant claim 1. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include this moiety in the compound taught by *Itoh et al* for the following reasons:

11. First, *Itoh et al* disclose several compounds containing the same core structure as the compounds of instant claim 1 which differ only in the modification at phenol and *Itoh et al* teach that these compounds can be modified at phenol. For example, in the above discussed examples disclosed by *Itoh et al*, the reference teaches modifications at phenol such as $-CH_2-(CF_2)_3-CHF_2$, CF3, and $CH_2-CF_2-CHF_2$. Accordingly, it would have been obvious to a person of ordinary skill in the art to envisage modification of the compound taught by *Itoh et al* and, furthermore, it would have been obvious to a person of ordinary skill in the art to envisage modifying the compound taught by *Itoh et al* at that specific position; namely, phenol.

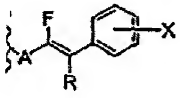
12. Second, *Kim et al* teach the group represented by:



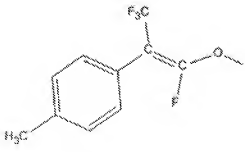
and, more specifically,



in fungicidal compounds (For example, Column 41, Example No. 105). Furthermore, *Kim et al* teach "a fungicidal compound… having a fluorovinyl… moiety… useful for protecting crops from fungal diseases" (abstract). Accordingly, one of ordinary skill in the art at the time the invention was made would have recognized that compounds containing the group represented by

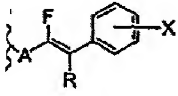


, and more specifically,



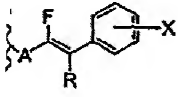
have fungicidal activity.

13. Third, *Kim et al* specifically provide the motivation to include the group

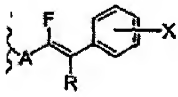


represented by in fungicidal compounds. Specifically, *Kim et al* teach that "the compounds of the present invention have a broad fungicidal activity spectrum against the target fungi when compared with the control compounds such as ORIBRIGHT and FENARIMOL" (Column 57, Lines 53-57). Notably, although ORIBRIGHT™ and FENARIMOL™ share some structural similarities with the compound disclosed by *Kim et al*, neither ORIBRIGHT™ nor FENARIMOL™ contain a fluorovinyl moiety. Accordingly, one of ordinary skill in the art at the time the invention was made would have recognized a motivation to include the moiety in compounds having antifungal activity.

14. And fourth, *Kim et al* teach that it is routine to react phenol with the group



represented by to generate compounds. Specifically, *Kim et al* teach the reaction of the group represented by



with phenol in Reaction Scheme G (Column 12, Lines 50-65). As disclosed by *Kim et al*, the

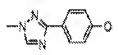
reaction as shown in Reaction Scheme G is carried out "according to a conventional method" (Column 12, Lines 45-49). Accordingly, one of ordinary skill in the art at the time the invention was made would have known to react the moiety at phenol.

15. Thus, based on *Kim et al* - which teach that compounds containing a fluorovinyl moiety exhibit enhanced fungicidal activity compared with compounds that lack the moiety - it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a fluorovinyl moiety into the invention taught by *Itoh et al*, a known fungicidal, in an effort to enhance the fungicidal activity. Furthermore, it would have been obvious to a person of ordinary skill in the art to include the moiety at the phenol position in *Itoh et al* to generate a compound encompassed by instant claim 1 since *Itoh et al* teach that the phenol position is capable of being modified and additionally because *Kim et al* specifically teach the addition of the moiety at phenol. In light of the foregoing, claim 1 is obvious.

16. Instant claim 3 is drawn to "a fungicidal composition comprising the compound according to claim 1 or 3 as an active ingredient and an inert carrier" (claim 3). *Itoh et al* specifically teach the compound "when it is used as an antifungal agent... is dissolved or dispersed in a suitable liquid carrier or mixed or absorbed with a suitable solid carried" (Column 14, Lines 47-52) and that "examples of the liquid carried used are water..." (Column 14, Line 63). Thus, *Itoh et al* specifically teach the compound which, as discussed above, is obvious in view of Kim et al, as an active ingredient with an inert carried in a fungicidal composition. Accordingly, claim 3 is obvious.

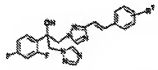
17. **Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Itoh et al* (US 5,371,101) in view of *Kim et al* (US 6,552,080) as applied to claims 1 and 3 above, and in further view of *Boyle et al* (Ann NY Acad Sci 544:86-100, 1988)**

18. Instant claim 2 is drawn to the compound of formula (I) wherein A is O or



. As discussed above, the compound of formula (I) as recited by claim 1 is obvious under *Itoh et al* in view *of Kim et al*. However, *Itoh et al* in view of *Kim et al* do not teach antifungal compounds containing the non-oxygenated triazole as recited by instant claim 2.

19. *Boyle et al* teach antifungal compounds containing a non-oxygenated triazole attached to the identical core described by the instant application (entire document). More specifically, *Boyle et al* teach, for example, the following compounds with antifungal activity having a non-oxygenated triazole attached to the instant core :



Compound Number	R¹	Activity: C. albicans in Vivo (μg/ml, IC_{90})	Antifungal Spectrum (μg/ml, MIC): Yeast	Mycelium	Dermatophyte	C. albicans in Vivo (mg/kg)	Half-life in Rat (days)
23	4-CN	0.12	100–1.6	0.01	100–1.6	1.0	1
24	4-CONH$_2$	0.53	> 100	0.01	(100)	> 25	
30	4-CON(Me)CH$_2$C$_6$F$_5$	0.006	25–6.2	< 0.01	≤ 1.6	10	
29	4-OCF$_3$	0.05	6.2–1.6	< 0.001	1.6	0.25	6.5
33	4-OCF$_2$CF$_2$H	0.004	100–1.6	< 0.01	6.2–1.6	0.25	9
32	4-OCH$_2$CF$_3$	0.03	1.6	< 0.01	1.6	0.5	1.5
34	4-OCH$_2$CF$_2$CF$_2$H	0.003	6.2–1.6	< 0.01	≤ 1.6	0.25	1
31	4-OCH$_2$CH$_2$F	0.003	25–1.6	< 0.001	1.6	25	
28	4-OCH$_3$	0.001	100–1.6	< 0.01	25–1.6	> 25	

(Page 97, Table 5). Accordingly, it would have been obvious to a person of ordinary

skill in the art at the time the invention was made to use compounds having either an oxygenated triazole (as taught by *Itoh et al*) or a non-oxygenated triazole (as taught by *Boyle et al*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG RICCI whose telephone number is (571)270-5864. The examiner can normally be reached on Monday through Thursday, and every other Friday, 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Nolan can be reached on (571) 272-0847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CRAIG RICCI/

Examiner, Art Unit 4161

/Patrick J. Nolan/
Supervisory Patent Examiner, Art Unit 4161